FY2010 Appropriations Request Form

Office of Congresswoman Jackie Speier
211 Cannon House Office Building
Washington, D.C. 20515
Phone: 202/225-3531
Fax: 202/226-4183
Website: www.speier.house.gov

Individuals/Organizations must respond to all questions on the form. Incomplete proposals will not be considered. All requests will be evaluated before the 12th Congressional District's Citizens Oversight Panel. Appointments to appear before the panel must be made through Cookab Hashemi, chief of staff ,at 202/225-3531 or Cookab.Hashemi@mail.house.gov. The panel will convene on the following days; Saturday, March 7, Friday, March 13 and Friday, March 20, 2009. All proposals must be submitted by March 2, 2009.

Date Submitted: March 2, 2009

Project Name: CSU COAST Equipment and Infrastructure

Individual/Organization: *(Is the grantee located in the 12th Congressional District?)* The California State University Council on Ocean Affairs, Science and Technology (COAST). (San Francisco State University, a critical member of COAST, is located in the district.)

Amount Requested (*if requesting report language, please attach.*): $3,000,000

Appropriations Bill/Account/Relevant Authorization law/bill/status (*e.g., "Public Law 107-111"; "FY2008 DOD Authorization", "Currently pursuing authorization through Agriculture Committee", "Safe Drinking Water Act" or "Hatch Act"*): Funds are requested from the FY 2010 Department of Commerce/NOAA appropriations process, either in NOAA Education Programs account or the NOAA Operations, Research and Facilities account.

Local Contact (*Please provide full contact information, including any relevant phone extensions, and indicate if there is a separate D.C. contact.*):

Local contact: Dr. Krista Kamer, COAST coordinator;

DC Contact: James M. Gelb, CSU Assistant Vice Chancellor for Federal Relations; California State University Office of Federal Relations;

Organization's Main Activities. (*Please limit your response to 250 words and indicate whether it is a public, private, non-profit or private for-profit entity.*)

The California State University (CSU), a public institution, is indispensable to California's economic prosperity and diverse communities. It is the nation's largest university system, with 23 campuses and seven off-campus centers, almost 450,000 students, and 47,000 faculty and staff. The CSU Council on Ocean Affairs, Science and Technology (COAST) is a system-wide initiative to promote marine and coastal research and education throughout the State. COAST is a network of faculty and staff from every CSU campus working to provide coordinated, integrated solutions to state and national issues such as global climate change and coastal impacts, natural and commercial marine resources, water quality and public health, coastal development, and marine economics and socially responsible policies.

COAST builds on the strengths of the CSU, which, stretching from Humboldt in the north to San Diego in the south, is renowned for the quality of its teaching and for its job-ready graduates. All 23 campuses provide high-quality, affordable higher education to meet the changing workforce needs of the people of California. A highly skilled, well-trained workforce is essential if California is to take the lead in successfully addressing issues of critical importance to the California economy and the nation.

With 92,000 annual graduates, the CSU is the state's greatest producer of bachelor's degrees and drives California's economy in information technology, life sciences, agriculture, business, education, international trade, public administration, entertainment and multimedia industries. The CSU also reaches out to California's growing, underserved communities, offering affordable opportunities to pursue a college degree.

Please show main items in the project and total cost in a simplified chart form. (*Please include the amount of any Federal/State/Local/Private funds, including any in-kind resources.*)

The CSU requests $3 million to upgrade equipment and infrastructure for COAST to establish six Technology Resource Groups throughout the state for marine and coastal research, workforce development and technology innovation. The proposed funding would be used to purchase and support equipment and infrastructure across the CSU and reflects the general areas of need for improved research and training in coastal issues that will benefit significantly from the incorporation of cutting-edge and emergent technologies.

Description	**Current CSU support**	**Requested Federal Support**
Central Administration	$140,000	
COAST Meetings	$ 60,000	
Faculty Release Time	$100,000	
Applied Geospatial Technology		$ 650,000
Environmental Quality Technology		$ 500,000

Climate Change Analysis		$ 150,000
Applied Organism Health Technology		$ 500,000
Marine Ecosystem Dynamics		$ 500,000
Marine and Estuarine Policy		$ 150,000
Electronic Networking Infrastructure		$ 550,000
Totals	**$300,000**	**$3,000,000**

Additional details re use of funding outlined in chart above: The development of the following Technology Resource Groups will provide the State with sound expertise and networked facilities, leading to practical solutions and a highly skilled workforce trained in the following topics:

- **Applied Geospatial Technology**—This Group will build upon existing expertise and infrastructure to provide training in the acquisition, visualization and application of high-resolution geospatial data to coastal policy and management issues, thus providing solutions for the state. **Funds will be used to purchase and support additional seafloor and coastline imaging equipment that will enhance the CSU's ability to collect valuable data to determine environmental change in these areas.**

- **Environmental Quality Technology**—This Group will build upon existing infrastructure to continue to provide high-quality environmental monitoring data that will be critical for addressing local and regional environmental issues and developing climate change adaptation strategies. **Funds will be used to replace old equipment, refurbish and upgrade instruments and purchase and support new instrumentation for new locations with added capabilities.**

- **Climate Change Analysis**—This Group will identify large, long-term data sets and promote collaboration among researchers to develop integrated studies of climate variation that will yield decision-making tools. **Funds will be used to provide necessary electronic infrastructure for analysis of large data sets.**

- **Applied Organism Health Technology**—This Group will develop techniques to monitor the degree to which manmade changes negatively impact marine organisms, including native and introduced species. A library of samples will be created as a reference for identifying deleterious changes at cellular and molecular levels. This will assist managers in their efforts to minimize stress to biological marine resources and maximize their ecological and economic value. **Funds will be used to purchase and support equipment to investigate cellular- and molecular-level indicators of stress and adaptation.**

- **Marine Ecosystem Dynamics**—This Group will engage in research and monitoring to assess how organisms use and interact with their environment and how human activity impacts ecosystems. The results will help resource managers develop and implement ecosystem-based management strategies for sustainable use of natural marine resources. **Funds will be used to purchase and support equipment to measure and visualize coastal marine environments and organisms, and to perform laboratory studies.**

- **Marine and Estuarine Policy**—This Group will promote the development of holistic solutions that can be accepted by all segments of society. **Funds will be used to engage in outreach to build awareness of the critical issues and engage stakeholders in formation of comprehensive solutions to critical environmental problems.**

- **Electronic Networking Infrastructure**—In order for these Groups to succeed and flourish, it will be necessary to provide significant electronic infrastructure to promote communication and collaboration within and among these Groups. Not only will each Group involve faculty at geographically separated campuses throughout the CSU, but the Groups will interact with each other to develop synergies and produce highly informed, practical solutions to environmental challenges. **Funds will be used to augment existing cyber infrastructure to provide video-conferencing, remote access to instrumentation and sharing of large data sets.**

Project Description, including a timeline, goals, expected outcomes and specific uses of Federal Funds. (*Your response must focus on the requested funds rather than the organization's mission and general activities. Please limit your response to 250 – 500 words.)*

CSU COAST seeks equipment and infrastructure funding to upgrade technological capacity statewide and launch six Technology Resource Groups to address critical national environmental issues:

- **Applied Geospatial Technology**—This Group will build upon existing expertise and infrastructure to provide training in the acquisition, visualization and application of high-resolution geospatial data to coastal policy and management issues, thus providing solutions for the state. **Funds will be used to purchase and support additional seafloor and coastline imaging equipment that will enhance the CSU's ability to collect valuable data to determine environmental change in these areas.**

- **Environmental Quality Technology**—This Group will build upon existing infrastructure to continue to provide high-quality environmental monitoring data that will be critical for addressing local and regional environmental issues and developing climate change adaptation strategies. **Funds will be used to replace old equipment, refurbish and upgrade instruments and purchase and support new instrumentation for new locations with added capabilities.**

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- **Electronic Networking Infrastructure**— It will be necessary to provide significant electronic infrastructure to promote communication and collaboration within and among these Groups and produce highly informed, practical solutions to environmental challenges. **Funds will be used to augment existing cyber infrastructure to provide video-conferencing, remote access to instrumentation and sharing of large data sets.**

Funds will be spent in 2010-2011. Personnel are already in place to organize and coordinate these Technology Resource Groups and COAST has the full support of the CSU Presidents and Chancellor's Office.

How will this earmark serve to expand the capacity of your organization and how will your organization sustain this work beyond the federal funding? (*Your response must focus on the impact of the requested funds rather than the organization's long-term goals.*)

This federal support will allow COAST to establish Resource Technology Groups that capitalize upon the existing expertise and assets of the CSU to provide focused efforts to address some of the State's most critical coastal issues. Involvement of students will expand COAST's capacity to enhance educational opportunities through hands on research experience, thus providing them with relevant workforce training.

We request funding to augment existing infrastructure and expertise. Personnel with the skills necessary to operate equipment purchased with the requested funds are available throughout the CSU and will be readily able to put these new assets to use.

What is the local significance of this project?

San Francisco State University plays an integral role in CSU COAST and will directly benefit from this funding request. The COAST staff are SFSU employees and over half of the CSU-provided baseline funding of $300,000 per year goes to SFSU to support personnel and travel costs associated with the program. The San Francisco area will benefit from each of the proposed Technology Resource Groups. For example, extensive geospatial datasets of the bathymetry of the Golden Gate and the shoreline of San Francisco Bay have already been collected by the Seafloor Mapping Laboratory (SFML) of CSU Monterey Bay, the group leading geospatial data set collection and analysis throughout the State. With this additional funding, the SFML will be able to upgrade its survey equipment, thus providing enhanced data collection capabilities for the fine-scale resolution needed to understand this highly dynamic environment. Repeated surveys by SFML are essential for assessing change in San Francisco Bay and devising adaptive management strategies. Similarly, research into socially responsible marine and estuarine policy that protects the environment while providing for economic growth and opportunity is also critical to quality of life in the Bay area.

More generally, California and the nation face a multitude of coastal and marine environmental and associated economic challenges. Mitigation of these challenges will require solutions that address ocean energy production, safe and efficient marine operations, water quality and public health, sustainable marine resources, the balance between coastal habitat preservation and development, and effective ecosystem-based management. Overlying all of these issues is climate change, which is already causing measurable and negative impacts to our marine and coastal environments. California's 1,100 miles of coastline face challenges that are representative of the entire coastal United States, including sea level rise and coastal erosion; loss of critical coastal habitat; stronger and more frequent storms; threats to water quality and collapse of fisheries. With the majority of our population living near the coast, these impacts will be felt directly by many and, without timely action, will dramatically and negatively affect our economy and way of life. It is imperative that a skilled workforce be trained in the development and application of emerging technologies to assess and understand the effects of these environmental changes if we are to adapt to them and thrive in spite of them. Investments are required to train this developing workforce in the latest technologies and provide opportunities for participation in applied environmental research. These investments will produce innovations in the science, environmental and technology sectors and train a generation of college graduates with skills necessary to grow the state and national economies through the development and implementation of new technologies and novel solutions to environmental problems.

In order for California to take the lead in successfully addressing issues of critical importance to the California economy and the nation, we need 1) a highly skilled, well-trained workforce, and 2) practical solutions to environmental problems. The CSU is uniquely positioned to meet these two critical needs. First, the CSU provides the well-trained workforce necessary to ensure that local, state and federal governments, management agencies and the public are prepared to meet on-going and future environmental and regulatory challenges, including those that will accompany global climate change. Second, the CSU provides solutions in the form of targeted, applied research to address pressing technical, environmental, and societal issues. To better address such issues in the marine and coastal realm, CSU COAST was established in 2008 to

promote marine science research, education and technology transfer throughout the CSU and the State of California and provide coordinated, integrated solutions to state and national issues. COAST is a network of faculty and staff from every campus across the CSU. This group embodies a diverse expertise over a comprehensive set of environmental disciplines and is committed to working collaboratively to advance our knowledge of California's natural coastal and marine resources and the processes that affect them.

How many residents of the 12th CD will benefit from this project? *(i.e. jobs created, services rendered to, how many people, etc.)*

All residents of the 12th CD would benefit from the applied environmental research conducted by COAST, and many SFSU students would be better trained as scientists, engineers, and policy makers equipped to build the coastal economy while protecting its environmental quality

List any other organizations or state/local elected officials who have expressed support for the project in writing. (*Please submit copies of support letters along with the proposal.*)

Does the organization have any other funding requests for this project? (*Federal, State, Local or private pending*?) This request has been submitted to other members of the California Congressional delegation in relevant districts and to both California Senators.

Has the organization previously received Federal funds for this project? (*Please list any funds received [by fiscal year] and briefly describe how those funds were spent.*) No

Please attach a list of your organization's staff and board members (*if any*). See attached page.

Please attach any additional relevant materials.

COAST Organization

A formal governance structure for COAST will be adopted in Spring 2009. In the interim, guidance will be provided by the following groups and individuals. COAST has the support of the Chancellor's Office and the Presidents.

Executive Committee
Dr. Kenneth Coale, Moss Landing Marine Laboratories, San Jose
Dr. Newell (Toby) Garfield, San Francisco
Dr. Rikk Kvitek, Monterey Bay
Dr. Andrew (Zed) Mason, Long Beach
Dr. Steven Murray, Fullerton

Interim Working Group (IWG)
Dr. Larry Allen, Northridge
Dr. Sean Anderson, Channel Islands
Dr. Todd Anderson, San Diego
Dr. Kenneth Coale, Moss Landing Marine Laboratories, San Jose
Dr. Greg Crawford, Humboldt
Dr. Kathy Dickson, Fullerton
Dr. Newell (Toby) Garfield, San Francisco
Dr. James Howard, Humboldt
Dr. Krista Kamer, San Francisco
Dr. Rikk Kvitek, Monterey Bay
Dr. Antje Lauer, Bakersfield
Dr. Andrew (Zed) Mason, Long Beach
Dr. Steven Murray, Fullerton
Dr. Susan Opava, San Luis Obispo
Dr. Ashish Vaidya, Channel Islands

Liaison to the Chancellor's Office
Dr. Elizabeth Ambos, Assistant Vice Chancellor for Research Initiatives and Partnerships, Chancellor's Office

Liaison to Presidents' Leadership Team
Dr. Rollin Richmond, President, Humboldt

COAST Staff
Dr. Krista Kamer, San Francisco
Dr. Dale Robinson, San Francisco
Ms. Adria O'Dea, San Francisco

The California State University
COUNCIL ON OCEAN AFFAIRS, SCIENCE AND TECHNOLOGY

www.calstate.edu/coast

Dr. Krista Kamer
Program Coordinator
CSU Council on Ocean Affairs, Science and Technology (COAST)
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Ms. Cookab Hashemi
Chief of Staff
Office of Congresswoman Jackie Speier (CA-12)
211 Cannon House Office Building
Washington, D.C. 20515

March 19, 2009

Dear Ms. Hashemi,

Dr. Newell Garfield and I appeared before Congresswoman Speier's Citizen Oversight Panel on March 13, 2009 at San Francisco City College to present the FY 2010 California State University Council on Ocean Affairs, Science and Technology (COAST) Equipment and Infrastructure Federal Request. The Panel asked for more specific information on the equipment that would be purchased with the requested funds ($3M). A list is provided below with brief explanations.

Applied Geospatial Technology-$650,000

1) New gyrocompass and navigation package to outfit second hydrographic survey research and training vessel for deployment to CSU-COAST partner sites: $150,000

CSUMB has the second trailerable vessel and the necessary sonar and LIDAR systems, but requires an Applanix POS MV motion system for this vessel to be brought on-line as a shared COAST asset.

2) Autonomous underwater vehicle (AUV) equipped for remote hydrographic mapping and photographic surveys: $500,000

This portable system will be deployable from any of the CSU's research vessels or from shore and is capable of mapping seafloor habitats at sub-meter resolution anywhere in California waters to a depth of 500m. Current CSU seafloor habitat mapping assets are only able to provide high-detail (<2m resolution) for depths less than 50m, which account for less than 30% of the state waters. High resolution mapping, however, is essential for accurate assessment of earthquake hazards and frequency, as well as reliable identification and characterization of essential fish habitats. The addition of a

hydrographic-capable AUV to the CSU asset base will allow COAST to extend the current depth range for high-resolution mapping 10-fold, covering the entire continental shelf and upper slope, which make up the great majority of west coast state waters.

Environmental Quality Technology-$500,000

3) Two pH/pCO_2 sensors: $50,000 each; total $100,000

These sensors measure the ocean's uptake of CO_2, a greenhouse gas, from the atmosphere and accompanying changes in seawater chemistry. Flux of CO_2 into the ocean changes the carbonate chemistry of seawater and contributes to ocean acidification, which threatens the base of ocean food webs.

4) Two Land/Ocean Biogeochemical Observatory (LOBO) moorings: $100,000 each; total $200,000

These multi-sensor moorings collect many oceanographic and meteorological parameters and have real-time data relay capability. Specifically, LOBO uses ultraviolet light to measure the concentration of nitrate in seawater. Nitrate is associated with natural oceanographic processes, such as upwelling, but increased concentrations in coastal waters are often due to human activities such as fossil fuel combustion and agricultural practices. Nitrate is transported from the watershed to the coastal ocean through surface water runoff and contributes to eutrophication, harmful algal blooms and the spread of invasive species.

5) Upgrades to existing stations to replace and add sensors to expand capabilities: $200,000

CSU currently operates 18 oceanographic monitoring stations and five weather stations along the coast of California. Standardization among the sites is necessary to increase data compatibility and robustness.

Climate Change Analysis-$150,000

6) Computing resources and cyber infrastructure to enhance data exchange among campuses for analysis of large data sets: $150,000

Applied Organism Health Technology-$500,000

7) Roche Genome sequencer: $500,000

This sequencer will allow fine-scale gene mapping and sequencing of entire genomes of organisms. Genome sequencing provides important data on processes in biotic systems including what constitutes normal cellular activities and altered disease states as well as helping scientists to identify commercially valuable gene products, reconstruct evolutionary history, and assess genetic diversity. The oceans contain the greatest diversity of life on earth yet little is known of the genetic information that forms the basis for this diversity. The Roche Genome sequencer represents the latest technology for high throughput DNA sequencing. Acquisition of this instrument will enable COAST members as well as all CSU researchers in the life/health/biochemical sciences to annotate the genomes of many organisms whose genetic information is currently

unknown. The sequencer will be web-enabled and will be available online for remote access from all CSU campuses.

Marine Ecosystem Dynamics-$500,000

8) Multibeam system for water column and bottom mapping: $250,000
9) Applanix POS MV motion, heading and navigation system with software: $150,000
10) Seabotix 150SE ROV with tracking, lasers, altimeter, and sonar: $100,000

A high resolution, multibeam sonar system for conducting hydroacoustic surveys would enable us to quantify and study fish populations throughout California. In addition, this system will be coupled with a GPS-referenced remotely operated vehicle (ROV) to calibrate acoustic surveys, calibrate benthic habitat maps, and quantify fish and invertebrate behavior. These systems would be major additions to the CSU's 75' ocean-going research vessel, the R/V Yellowfin, which is currently used by the CSU's Ocean Studies Institute (OSI) for oceanographic and fisheries research and training. OSI is a consortium of 10 southern California CSU campuses.

Marine and Estuarine Policy-$150,000

11) Computing resources and cyber infrastructure to promote communication and collaboration in development of socially responsible marine and estuarine policies among campuses: $150,000

Electronic Networking Infrastructure-$550,000

12) Communication, web-conferencing, instrumentation remote access software package for system-wide use: $550,000

Software (e.g., Elluminate, iLinc) for enhancing communications, data and product sharing and accessing instrumentation remotely is essential to the continued development of the COAST network and implementation of long term goals. This technology provides access across campuses, promoting resource sharing and synthesis.

Thank you for the opportunity to provide this information. We are happy to answer any additional questions the Panel may have and thank the Congresswoman for engaging in an open, transparent approach to the appropriation process.

Sincerely,

Krista Kamer